

WHAT IS CLAIMED IS

1. An apparatus for making a tubular length (1) of stretch film, the apparatus (2) being applicable to machines or lines (3) for making packages (C) containing groups of products wrapped with stretch film, and comprising at least the following:

- a feed table (4), extending in a defined direction (D), on which the groups of products presenting a front face (5) are formed;

- a station (6) for making the packages (C), located on the feed table (4) and being equipped with means (7) for unwinding the stretch film and forming the length (1) of the film around package (C) preforming means (8), located on the feed table (4) and being mobile between several working positions in order to stretch the length (1) of film in such a way that its cross section is larger than the front face (5) of the group of products, thus enabling the latter to be fed into the station (6) and, after the package (C) has been formed, to be fed out onto the feed table (4) again, wherein the means (7) for unwinding and forming the film length (1) comprise at least:

- a roll (9) of stretch film located near the means (8) for preforming the package (C);

- means (10) for cutting a length (1) of the film unwound from the roll (9) and located upstream of the preforming means (8);

- means (11) for gripping the film and moving along a substantially ring-shaped path (P) in such a way as to wind the film

around the package (C) preforming means (8) and place the leading and trailing ends (1a, 1b) of the length (1) of film into contact with each other;

a unit (12), located close to the preforming means (8), for stably joining the ends (1a, 1b) together to form the length (1) of film into a tubular shape around the preforming means (8).

2. The apparatus according to claim 1, wherein the gripping means (11) comprise a single gripper (22) for holding the leading end (1a) of the film, the gripper (22) being mobile along the ring-shaped path (P) around the preforming means (8).
3. The apparatus according to claim 1, wherein the gripping means (11) comprise a single gripper (22) for holding the leading end (1a) of the film, the gripper (22) being mobile along the ring-shaped path (P) around the preforming means (8); the gripper (22) being positioned on one side of the preforming means (8), that is to say, lying across the feed direction (D) and being designed to hold the free leading end (1a) on one side.
4. The apparatus according to claim 1, wherein the gripping means (11) comprise a pair of grippers (22, 22a) for holding the leading end (1a) of the film on both sides, the grippers (22, 22a) being mobile along the ring-shaped path (P) around the preforming means (8); the pair of grippers (22, 22a) being positioned on both sides of the preforming means (8), that is to say, lying across the

feed direction (D) and being designed to hold the free leading end (1a) on both sides.

5. The apparatus according to claim 3, wherein the gripper (22) consists of a telescopic unit comprising:

an actuating arm (13) pivoted at its lower end at (B) to a fixed supporting structure (14) in such way as to swing in both directions about a vertical axis (Z) coinciding with a line passing through the center of the preforming means (8);

a rod (15) slidably housed inside the arm (13) and equipped at its upper free end with the gripper (22) that holds the leading end (1a); the rod (15) being mobile between several working positions from a withdrawn position in which the rod (15) is inside the actuating arm (13), keeping the gripper (22) outside it, and an advanced position in which the rod (15) forms an extension of the arm (13);

synchronized drive means (16) being provided to act on the arm (13) and on the rod (15) in such a way as to pull the film being held by the gripper (22) along the ring shaped path (P) around the preforming means (8).

6. The apparatus according to claim 4, wherein each gripper (22, 22a) consists of a telescopic unit comprising:

an actuating arm (13) pivoted at its lower end at (B) to a fixed supporting structure (14) in such way as to swing in both directions about a vertical axis (Z) coinciding with a line passing through the

center of the preforming means (8);

a rod (15) slidably housed inside the arm (13) and equipped at its upper free end with the respective gripper (22, 22a) holding the leading end (1a); the rod (15) being mobile between several working positions from a withdrawn position in which the rod (15) is inside the actuating arm (13), keeping the gripper (22, 22a) outside it, and an advanced position in which the rod (15) forms an extension of the arm (13);

synchronized drive means (16) being provided to act on at least one of the arms (13) and on at least one of the rods (15) in such a way as to pull the film being held on both sides by the grippers (22, 22a) along the ring shaped path (P) around the preforming means (8).

7. The apparatus according to claim 1, wherein the roll (9) and the cutting means (10) are positioned upstream of a film transporting surface (17) designed to convey the film close to the preforming means (8).
8. The apparatus according to claim 7, wherein the transporting surface comprises an endless belt (17) trained around at least one pair of rollers (18, 19), of which at least one is motor driven in synchrony with the preforming means (8); the cutting means (10) being positioned at the end of the belt (17) furthest away from the preforming means (8).

9. The apparatus according to claim 8, wherein the cutting means (10) comprise a circular knife (10c) interposed between a first pair of rollers (20, 21), that feed the film from the roll (9) and are located upstream of the knife (10c), and the end of the belt (17), which is equipped with a film gripping roller (23) that faces the end of the belt (17).
10. The apparatus according to claim 1, wherein the unit (12) for stably joining the free ends (1a, 1b) of the film length (1) comprises means (24) for sealing the free ends (1a, 1b), located under the preforming means (8).
11. The apparatus according to claim 10, wherein the sealing means (24) comprise:
- a first, fixed sealing plate (25) positioned under the preforming means (8) at the vertical axis (Z) passing through the center of the preforming means (8);
 - means (26) for generating a vacuum, acting on the first plate (25) and designed to retain the end (1b) while the rest of the film length (1) is being wound;
 - a second contact plate (27), facing the first plate (25) and mobile between an idle position, in which it is away from the first plate (25), and a sealing position in which the second plate (27) is in contact with the first plate (25) after the two ends (1a, 1b) of the film length (1) have overlapped.